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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,249	11/10/2005	Xuecheng Qian	CN 030011	6573
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NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			EXAMINER TORRES, JUAN A	
			ART UNIT 2611	PAPER NUMBER
			NOTIFICATION DATE 02/03/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary

Application No.

10/556,249

Applicant(s)

QIAN, XUECHENG

Examiner

JUAN A. TORRES

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The modifications to the specification were received on 12/18/2008. These modifications are accepted by the Examiner.

In view of the amendment filed on 12/18/2008, the Examiner withdraws Specification objections of the previous Office action.

The title has been changed to "Wireless communication receiver having an analog to digital converter (ADC) with a limited dynamic range."

Claim Rejections - 35 USC § 101

The modifications to the claims were received on 12/18/2008. These modifications are accepted by the Examiner.

In view of the amendment filed on 12/18/2008, the Examiner withdraws claim rejections under 35 USC § 101 to claims 5-8 of the previous Office action.

Response to Arguments

Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Östman (US 6061385 A) in view of Applicant Admitted Prior Art (AAPA).

Regarding claims 1 and 5, Östman discloses a processing unit that processes received signals and filters the processed signals in an analog domain to output filtered analog signals (figures 2 and 4 blocks 1-13 column 6 lines 22-47); an analog-to-digital converter (ADC) that converts the filtered analog signals into digital signals (figures 2 and 4 blocks 14 column 6 lines 62-66); and a digital filter that filters the digital signals from the ADC and attenuates residual interferers in the digital signals by a predetermined amount, so as to allow relaxation of tolerable quantization noise generated by the ADC to a pre-defined level to thereby substantially reduce a dynamic range of the ADC; wherein the ADC has a word length corresponding to the reduced dynamic range (figures 2 and blocks 50 and 32 column 6 line 49 to column 7 line 2). Östman doesn't specifically disclose that the pre-defined level is higher than a level prescribed by the receiver's sensitivity. AAPA discloses that the pre-defined level is higher than a level prescribed by the receiver's sensitivity (figure 1 page 2 lines 12-20). Östman and AAPA teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Östman with the sensitivity disclosed by AAPA. The suggestion/motivation for doing so would have been to have a level above the quantization noise (AAPA page 2 lines 12-20. This limitation is also common sense, [see KSR Int'l Co. v. Teleflex Inc. Case cited

as 550 US (2007). In the KSR case, the Court stated that in certain circumstances what is obvious to try is also obvious, such as where "there is a design need or market pressure to solve a problem, and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Regarding hindsight, the Court found that "[r]igid preventive rules that deny fact finders recourse to common sense . . . are neither necessary under our case law nor consistent with it." The Court stated that "familiar items may have obvious uses beyond their primary purposes," analogizing an obvious invention to the fitting together of pieces to a puzzle. The Court in this regard further stated that the person of ordinary skill is also a person of ordinary creativity, and not "an automaton."], in this particular case, as acknowledged by AAPA the lower limit of the dynamic range is specified by the quantization noise as prescribed by the receiver sensitivity, in other words the level can not be lower than the receiver sensitivity because in that case the receiver will not be able to discern the signal).

Regarding claims 3 and 7, Östman and AAPA disclose claims 1 and 5, AAPA also discloses that the pre-defined level of the quantization noise is maintained within a range, such that the total interference of the receiver is kept at a level not greater than an allowable level (figure 1 page 1 lines 8-15 page 2 lines 8-15. This limitation is also common sense, [see KSR Int'l Co. v. Teleflex Inc. Case cited as 550 US (2007). In the KSR case, the Court stated that in certain circumstances what is obvious to try is also obvious, such as where "there is a design need or market pressure to solve a problem,

and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Regarding hindsight, the Court found that "[r]igid preventive rules that deny fact finders recourse to common sense . . . are neither necessary under our case law nor consistent with it." The Court stated that "familiar items may have obvious uses beyond their primary purposes," analogizing an obvious invention to the fitting together of pieces to a puzzle. The Court in this regard further stated that the person of ordinary skill is also a person of ordinary creativity, and not "an automaton."], in this particular case, as acknowledged by AAPA the interference should be below the allowable level).

Regarding claims 4 and 8, Östman and AAPA disclose claims 1 and 5, Östman also discloses a demodulator that demodulates the filtered digital signals from the ADC to recover user data (figure 4 block 33 column 7 lines 20-34).

Regarding claim 9, Östman and AAPA disclose claim 1, Östman also discloses that the digital filter is a digital filter configured to attenuate out-of-band interferers. The filter used by Östman is the baseband signal after the ADC. AAPA discloses a low-pass filter (LPF) 42 before the AGC 46. At the time of the invention it will be obvious to one of ordinary skill in the art to use also a LPF after the ADC, because the signal already filtered is a low-pass signal. Again this is also common sense, if the signal before the ADC uses a LPF, after the ADC the LPF should be maintained, also the use of LPF are easy to design, have low complexity and are well known in the art. [see KSR Int'l Co. v.

Teleflex Inc. Case cited as 550 US (2007). In the KSR case, the Court stated that in certain circumstances what is obvious to try is also obvious, such as where "there is a design need or market pressure to solve a problem, and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Regarding hindsight, the Court found that "[r]igid preventive rules that deny fact finders recourse to common sense . . . are neither necessary under our case law nor consistent with it." The Court stated that "familiar items may have obvious uses beyond their primary purposes," analogizing an obvious invention to the fitting together of pieces to a puzzle. The Court in this regard further stated that the person of ordinary skill is also a person of ordinary creativity, and not "an automaton."]

Claim 9 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Östman and AAPA as applied to claim 1 above and further in view of Mostafa (US 7110732 B2).

Regarding claim 9, Östman and AAPA disclose claim 1, Östman and AAPA don't specifically disclose that the digital filter is a low-pass filter. Mostafa discloses a digital LPF after the ADC (figure 6 block 86). Östman, AAPA and Mostafa teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Östman and AAPA with the digital LPF

disclosed by Mostafa. The suggestion/motivation for doing so would have been to have to reduce the noise of the signal.

Claims 1, 3-5, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathe (US 6243430 B1) in view of Applicant Admitted Prior Art (AAPA).

Regarding claims 1 and 5, Mathe discloses a processing unit that processes received signals and filters the processed signals in an analog domain to output filtered analog signals (figure 2 blocks 112-126 column 5 line 62 to column 6 line 12); an analog-to-digital converter (ADC) that converts the filtered analog signals into digital signals (figure 2 block 240 column 6 lines 12-17); and a digital filter that filters the digital signals from the ADC and attenuates residual interferers in the digital signals by a predetermined amount, so as to allow relaxation of tolerable quantization noise generated by the ADC to a pre-defined level to thereby substantially reduce a dynamic range of the ADC; wherein the ADC has a word length corresponding to the reduced dynamic range (figure 2 blocks 250 and figure 5 column 8 lines 4-42). Mathe doesn't specifically disclose that the pre-defined level is higher than a level prescribed by the receiver's sensitivity. AAPA discloses that the pre-defined level is higher than a level prescribed by the receiver's sensitivity (figure 1 page 2 lines 12-20). Mathe and AAPA teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Mathe with the sensitivity disclosed by AAPA. The suggestion/motivation for doing so would have

been to have a level above the quantization noise (AAPA page 2 lines 12-20. This limitation is also common sense, [see KSR Int'l Co. v. Teleflex Inc. Case cited as 550 US (2007)]. In the KSR case, the Court stated that in certain circumstances what is obvious to try is also obvious, such as where "there is a design need or market pressure to solve a problem, and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Regarding hindsight, the Court found that "[r]igid preventive rules that deny fact finders recourse to common sense . . . are neither necessary under our case law nor consistent with it." The Court stated that "familiar items may have obvious uses beyond their primary purposes," analogizing an obvious invention to the fitting together of pieces to a puzzle. The Court in this regard further stated that the person of ordinary skill is also a person of ordinary creativity, and not "an automaton."], in this particular case, as acknowledged by AAPA the lower limit of the dynamic range is specified by the quantization noise as prescribed by the receiver sensitivity, in other words the level can not be lower than the receiver sensitivity because in that case the receiver will not be able to discern the signal).

Regarding claims 3 and 7, Mathe and AAPA disclose claims 1 and 5, AAPA also discloses that the pre-defined level of the quantization noise is maintained within a range, such that the total interference of the receiver is kept at a level not greater than an allowable level (figure 1 page 1 lines 8-15 page 2 lines 8-15. This limitation is also common sense, [see KSR Int'l Co. v. Teleflex Inc. Case cited as 550 US (2007)]. In the

KSR case, the Court stated that in certain circumstances what is obvious to try is also obvious, such as where "there is a design need or market pressure to solve a problem, and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Regarding hindsight, the Court found that "[r]igid preventive rules that deny fact finders recourse to common sense . . . are neither necessary under our case law nor consistent with it." The Court stated that "familiar items may have obvious uses beyond their primary purposes," analogizing an obvious invention to the fitting together of pieces to a puzzle. The Court in this regard further stated that the person of ordinary skill is also a person of ordinary creativity, and not "an automaton."], in this particular case, as acknowledged by AAPA the interference should be below the allowable level).

Regarding claims 4 and 8, Mathe and AAPA disclose claims 1 and 5, Mathe also discloses a demodulator that demodulates the filtered digital signals from the ADC to recover user data (figure 2 blocks 250 and figure 5 column 8 lines 4-42).

Regarding claim 9, Mathe and AAPA disclose claim 1, Mathe also discloses that the digital filter is a digital filter configured to attenuate out-of-band interferers. The filter used by Mathe is the band pass filter BPF that is formed by a LPF and a HPF, A LPF is also a particular case of a LPF where the low pass frequency is zero, the LPF is also less complex than the BPF, and as indicated previously the BPF includes a LPF, Mathe also discloses the use of a LPF after the BPF in block 520, so the signal after the ADC

is LPF by filter 520. AAPA discloses a low-pass filter (LPF) 42 before the AGC 46. At the time of the invention it will be obvious to one of ordinary skill in the art to use also a LPF after the ADC, because the signal already filtered is a low-pass signal. Again this is also common sense, if the signal before the ADC uses a LPF, after the ADC the LPF should be maintained, also the use of LPF are easy to design, have low complexity and are well known in the art. [see KSR Int'l Co. v. Teleflex Inc. Case cited as 550 US (2007). In the KSR case, the Court stated that in certain circumstances what is obvious to try is also obvious, such as where "there is a design need or market pressure to solve a problem, and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Regarding hindsight, the Court found that "[r]igid preventive rules that deny fact finders recourse to common sense . . . are neither necessary under our case law nor consistent with it." The Court stated that "familiar items may have obvious uses beyond their primary purposes," analogizing an obvious invention to the fitting together of pieces to a puzzle. The Court in this regard further stated that the person of ordinary skill is also a person of ordinary creativity, and not "an automaton."]

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Regarding claim 9, Mathe and AAPA disclose claim 1, Mathe and AAPA don't specifically disclose that the digital filter is a low-pass filter. Mostafa discloses a digital LPF after the ADC (figure 6 block 86). Mathe, AAPA and Mostafa teachings are analogous art because they are from the same field of digital signal processing. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate in the methodology disclosed by and Mathe and AAPA with the digital LPF disclosed by Mostafa. The suggestion/motivation for doing so would have been to have to reduce the noise of the signal.

Allowable Subject Matter

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUAN A. TORRES whose telephone number is (571)272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres
01/29/2009

/Juan A Torres/
Primary Examiner, Art Unit 2611